



CORPORATE – POCATELLO OFFICE

September 30, 2015

Mary Kauffman
Caribou-Targhee National Forest
1405 Hollipark Dr.
Idaho Falls, Idaho 83401

**Subject: Biological Selenium Removal Treatment Technology
Fluidized Bed Bioreactor Pilot Study
August 2015 Progress Report**

Dear Mary,

This progress report summarizes key activities in August 2015 associated with the fluidized bed bioreactor (FBR) pilot study located near Hoopes Spring. This pilot study is being conducted as part of the Smoky Canyon Mine Remedial Investigation/Feasibility Study (RI/FS) to provide information on the effectiveness of the active biological treatment system in removing selenium and other COPCs from South Fork Sage Creek Springs and Hoopes Spring. Operation and monitoring of the pilot study follows the *Pilot Study Work Plan and Sampling and Analysis Plan (Work Plan/SAP), Biological Selenium Removal Treatment Technology Fluidized Bed Bioreactor* (prepared by Formation Environmental, dated September 2014, with revised text and tables dated March 5, 2015).

The FBR system ran through July, but there were continued issues with headloss through the sand filter. On August 3, 2015, the sand filter headloss exceeded the shutdown point. The system was taken offline while the equipment vendors investigated the cause of the problems. Similar to the previous shutdowns, the FBR unit has been isolated, and no water has been processed through the reactor. In order to keep the sand filter media fluidized, untreated creek water has been flowing through the aeration tank and sand filter.

It has been determined that filamentous sulfide oxidizing bacteria are growing in the aeration tank. The bacteria are problematic as they form long filaments that impart a high solids load on the downstream sand filter, and are likely clogging the sand filter media. In addition to the clogging caused by the bacteria, it was also discovered that one of the FBR underdrains was cracked. Investigations into these issues were conducted throughout August, and changes to the system were proposed to the Agencies in early September (to be addressed in the September monthly report).

Identification of Deliverables and Data Transmittals

Attached in Table 1 are preliminary laboratory analytical results (received through August 31) for samples collected on July 21 and July 28, 2015. Also attached in Table 2 are provisional field data for the treatment system samples collected through August 31, 2015.

Upcoming Activities

The following activities associated with the fluidized bed bioreactor pilot study are scheduled into October 2015:

- The plant will continue to be offline while the underdrains are replaced and an oxidation system is installed. It is anticipated that plant will be back online in early to mid-October and that routine monitoring will resume accordingly.
- The UF/RO and mini FBR units will be disassembled and taken offsite by the respective vendors supplying equipment for the skid pilot test. A summary report will be generated after all data has been received and reviewed.

Please contact me if there are questions regarding this monthly progress report.

Sincerely,



Monty Johnson
Environmental Engineering Manager

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